United States Environmental Protection Agency

Fact Sheet: Drinking Water Contaminant Candidate List 4 – Draft

EPA is publishing a draft list of contaminants that may require regulation in the future, in accordance with the Safe Drinking Water Act.

The Drinking Water Contaminant Candidate List 4 – Draft (CCL 4) includes 100 chemicals or chemical groups and 12 microbial contaminants that are known or anticipated to occur in public water systems. The list includes, among others, chemicals used in commerce, pesticides, biological toxins, disinfection byproducts, pharmaceuticals and waterborne pathogens. The agency is requesting comments on the chemical and microbial contaminants included on the Draft CCL 4 and suggestions for improvements to the process for the agency to consider for future CCLs. The agency is also consulting with the Science Advisory Board (SAB) on the Draft CCL 4. The agency will evaluate and consider all public comments and recommendations received from the SAB in developing the Final CCL 4.

To submit comments on the Draft CCL 4, please follow the instructions for the 60-day comment period provided in the [insert date of publication] *Federal Register* Notice.

You can find more information on the CCL on the EPA's Website at: http://www2.epa.gov/ccl.

Frequently Asked Questions

What is the drinking water CCL?

The drinking water CCL is a list of contaminants that are currently not subject to any proposed or promulgated national primary drinking water regulations, but are known or anticipated to occur in public water systems. Contaminants listed on the CCL may require future regulation under the Safe Drinking Water Act (SDWA). EPA uses the CCL to identify priority contaminants for regulatory decision making and information and collection (research) needs.

How often is the CCL published?

The SDWA directs EPA to publish a CCL every five years. The agency published the first CCL (CCL 1) in March 1998, the second CCL (CCL 2) in February 2005 and the third CCL (CCL 3) in October 2009.

Does the CCL impose any requirements on public water systems?

No. Publication of the CCL does not impose any requirements on public water systems. If EPA decides to regulate a contaminant on the list in the future, the agency will start a separate rulemaking process with opportunity for public comment.

What approach did EPA use to list contaminants on the Draft CCL 4?

The CCL 4 evaluation and selection process includes a three-pronged approach:

1) Carrying forward CCL 3 contaminants (except those with regulatory determinations).
2) Seeking and evaluating nominations from the public for additional contaminants to be considered.
3) Evaluating any new available data for those contaminants with previous negative regulatory determinations from CCL 1 or CCL 2 for potential inclusion on the CCL 4.

In May 2012, EPA sought public input by requesting nominations of contaminants to be considered for inclusion on the CCL 4. The agency evaluated the nominated contaminants and contaminants with previous negative regulatory determinations utilizing the best available health effects and occurrence data and the same process for screening and scoring contaminants that was used for CCL 3. The agency reviewed the data provided by the nominators and collected additional data for the nominated contaminants and contaminants with previous negative regulatory determinations.

What changes did EPA make from the Final CCL 3 to the Draft CCL 4?

Based on the agency's review of the best available health effects and occurrence data, EPA made these changes to the list:

- Added two nominated contaminants *(manganese and nonylphenol).*
- Removed perchlorate because the agency made a positive regulatory determination in 2011.
- Removed five contaminants with preliminary regulatory determinations. As part of the third Regulatory Determination (RD3) process, in October 2014, the agency made preliminary determinations to not regulate four contaminants (1,3-dinitrobenzene; dimethoate; terbufos and terbufos sulfone) and to regulate one contaminant (strontium) listed on CCL 3. These five contaminants are being removed from the Draft CCL 4, pending publication of the final RD3. For more information on the preliminary regulatory determinations, please see: http://www2.epa.gov/ccl.

What happens to contaminants on the Final CCL 4?

After the Final CCL 4 is published, SDWA requires EPA to determine whether or not to regulate at least five contaminants from the list in a separate process called Regulatory Determination. The agency will compile and evaluate additional data on the CCL 4 contaminants and determine which ones have sufficient information to be evaluated against the three criteria listed in SDWA for making a regulatory determination. The agency will make regulatory determinations for the CCL 4 contaminants that have sufficient data, and continue to collect information, conduct and support research and/or find avenues to fill data and information gaps for contaminants that lack sufficient information.

What is a Regulatory Determination?

A regulatory determination is a formal decision on whether EPA should initiate a process to develop a national primary drinking water regulation for a specific contaminant. The law (SDWA) requires the agency to make regulatory determinations for at least five contaminants from the most recent CCL within five years after the completion of the previous round of regulatory determinations. To see the list of regulatory determinations for the previous CCLs, please go to: http://www2.epa.gov/ccl

Where can I find more information about this notice and the CCL?

For information on the CCL 4, please visit the EPA website, http://www2.epa.gov/ccl/contaminant-candidate-list-4-ccl-4. For general information on drinking water, please visit the EPA drinking water website at http://water.epa.gov/drink/ or contact the Safe Drinking Water Hotline at 1-800-426-4791. Local or international calls can reach the Hotline at 703-412-3330. The Hotline is open Monday through Friday, excluding federal holidays, from 10:00 a.m. to 4:00 p.m., eastern time.

What contaminants are included on the Draft CCL 4?

The chemicals and microbes are listed on the attached table.

Draft Drinking Water Contaminant Candidate List 4

Chemicals

Substance Name	CASRN	Use
1,1-Diochloroethene	75-34-3	It is an industrial solvent and an intermediate in the synthesis of other compounds.
1,1,1,2-Tetrachloroethane	630-20-6	It is an industrial solvent and used in the synthesis of other chlorinated compounds.
1,2,3-Trichloropropane	96-18-4	It is an industrial solvent, cleaning and degreasing agent as well as an intermediate in the synthesis of the other compounds.
1,3-Butadiene	106-99-0	It is used in the production of rubber and plastics.
1,4-Dioxane	123-91-1	It is used as a solvent or solvent stabilizer in the manufacturing and processing of paper, cotton, textile products, automotive coolant, cosmetics and shampoos.
17 alpha-estradiol	57-91-0	It is an estrogenic hormone found in some pharmaceuticals.
1-Butanol	71-36-3	It is a solvent used in production of other chemicals and compounds. It is present in a number of commercial products such as perfumes.
2-Methoxyethanol	109-86-4	It is used in a number of consumer products, such as synthetic cosmetics, perfumes, fragrances, hair preparations and skin lotions.
2-Propen-1-ol	107-18-6	It is used in the production of other chemicals.
3-Hydroxycarbofuran	16655-82-6	It is a pesticide degradate, the parent, carbofuran, is used as an insecticide.
4,4'-Methylenedianiline	101-77-9	It is used in the production of polyurethane foams, glues, rubber and spandex fiber.
Acephate	30560-19-1	It is an insecticide.
Acetaldehyde	75-07-0	It is a disinfection byproduct from ozonation; it is used in the production of other chemicals.
Acetamide	60-35-5	It is used as a solvent and plasticizer.
Acetochlor	34256-82-1	It is an herbicide for weed control on agricultural crops.
Acetochlor ethanesulfonic acid (ESA)	187022-11-3	Acetochlor ESA is an environmental degradate of acetochlor.
Acetochlor oxanilic acid (OA)	184992-44-4	Acetochlor OA is an environmental degradate of acetochlor.
Acrolein	107-02-8	It is used as an aquatic herbicide, rodenticide and industrial chemical.

Substance Name	CASRN	Use
Alachlor ethanesulfonic acid (ESA)	142363-53-9	Alachlor ESA is an environmental degradate of the pesticide alachlor (an herbicide for weed control on agricultural crops).
Alachlor oxanilic acid (OA)	171262-17-2	Alachlor OA is an environmental degradate of alachlor.
alpha-Hexachlorocyclohexane	319-84-6	It is a component of benzene hexachloride (BHC) and was formerly used as an insecticide.
Aniline	62-53-3	It is used as an industrial chemical, as a solvent, in the synthesis of explosives, rubber products and in isocyanates.
Bensulide	741-58-2	It is an herbicide.
Benzyl chloride	100-44-7	It is used in the production of other substances, such as plastics, dyes, lubricants, gasoline and pharmaceuticals.
Butylated hydroxyanisole	25013-16-5	It is used as a food additive (antioxidant).
Captan	133-06-2	It is a fungicide.
Chlorate	14866-68-3	Chlorate compounds are used in agriculture as defoliants or desiccants and may occur in drinking water because of use of disinfectants such as chlorine dioxide and hypochlorites.
Chloromethane (Methyl chloride)	74-87-3	It is used as a foaming agent and in the production of other substances.
Clethodim	110429-62-4	It is an herbicide.
Cobalt	7440-48-4	It is a naturally-occurring element and was formerly used as cobaltous chloride in medicines and as a germicide. It is a part of the vitamin B12 molecule
Cumene hydroperoxide	80-15-9	It is used as a catalyst in the production of other substances.
Cyanotoxins		Toxins naturally produced and released by cyanobacteria ("blue-green algae"). Various studies suggest three cyanotoxins for consideration: Anatoxin-a, Cylindrospermopsin and Microcystin-LR.
Dicrotophos	141-66-2	It is an insecticide.
Dimethipin	55290-64-7	It is an herbicide and plant growth regulator.
Disulfoton	298-04-4	It is an insecticide.
Diuron	330-54-1	It is an herbicide.
Equilenin	517-09-9	It is an estrogenic hormone used in hormone replacement therapy.
Equilin	474-86-2	It is an estrogenic hormone used in hormone replacement therapy.
Erythromycin	114-07-8	It is used an antibiotic.

Substance Name	CASRN	Use
Estradiol (17-beta estradiol)	50-28-2	It is an isomer of estradiol found in some pharmaceuticals.
Estriol	50-27-1	It is a weak estrogenic hormone used in veterinary pharmaceuticals.
Estrone	53-16-7	It is a precursor of estradiol used in veterinary and human pharmaceuticals.
Ethinyl estradiol (17-alpha ethynyl estradiol)	57-63-6	It is an estrogenic hormone used in veterinary and human oral contraceptives.
Ethoprop	13194-48-4	It is an insecticide.
Ethylene glycol	107-21-1	It is used as antifreeze, in textile manufacturing and is a cancelled pesticide.
Ethylene oxide	75-21-8	It is a fungicidal and insecticidal fumigant.
Ethylene thiourea	96-45-7	It is used in the production of other substances, such as for vulcanizing polychloroprene (neoprene) and polyacrylate rubbers and is a metabolite of the pesticide maneb.
Fenamiphos	22224-92-6	It is an insecticide.
Formaldehyde	50-00-0	It is an ozonation disinfection byproduct, can occur naturally and has been used as a fungicide.
Germanium	7440-56-4	It is a naturally-occurring element and is commonly found as germanium dioxide in phosphors, transistors and diodes, and in electroplating. In some cases it has been sold as a dietary supplement.
HCFC-22	75-45-6	It is used as a refrigerant, as a low-temperature solvent, and in fluorocarbon resins, especially in tetrafluoroethylene polymers.
Halon 1011 (bromochloromethane)	74-97-5	It is used as a fire-extinguishing fluid and to suppress explosions, as well as a solvent in the manufacturing of some pesticides. May also occur as a disinfection by-product in drinking water.
Hexane	110-54-3	It is a component of gasoline and used as a solvent.
Hydrazine	302-01-2	It is used as an ingredient in the production of other substances, such as rocket propellants. It is also used in the production of plastics.
Manganese	7439-96-5	It is a naturally-occurring element used in a variety of applications including use in steel production to improve hardness, stiffness and strength. It is an essential nutrient found in vitamin/mineral supplement and in fortified foods.
Mestranol	72-33-3	It is a precursor to ethinylestradiol used in veterinary and

Substance Name	CASRN	Use
		human pharmaceuticals.
Methamidophos	10265-92-6	It is an insecticide.
Methanol	67-56-1	It is used as an industrial solvent, a gasoline additive and as an anti-freeze ingredient.
Methyl bromide (bromomethane)	74-83-9	It has been used as a fumigant and fungicide.
Methyl tert-butyl ether (MTBE)	1634-04-4	It is used as an octane booster in gasoline, in the manufacturing of isobutene and as an extraction solvent.
Metolachlor	51218-45-2	It is an herbicide for weed control on agricultural crops.
Metolachlor ethanesulfonic acid (ESA)	171118-09-5	Metolachlor ESA is an environmental degradate of metolachlor.
Metolachlor oxanilic acid (OA)	152019-73-3	Metolachlor OA is an environmental degradate of metolachlor.
Molinate	2212-67-1	It is an herbicide.
Molybdenum	7439-98-7	It is a naturally-occurring element and is commonly found as molybdenum trioxide. It is used as a steel alloy. It is an essential dietary nutrient found in foods and nutritional supplements.
Nitrobenzene	98-95-3	It is used in the production of aniline, and also as a solvent in the manufacturing of paints, shoe polishes, floor polishes, metal polishes, explosives, dyes, pesticides and drugs (such as acetaminophen).,
Nitroglycerin	55-63-0	It is used in the production of explosives and in rocket propellants. It is also a pharmaceutical for the treatment of angina.
N-Methyl-2-pyrrolidone	872-50-4	It is a solvent in the chemical industry and is used in the formulation of pharmaceuticals for oral and dermal delivery.
N-Nitrosodiethylamine (NDEA)	55-18-5	It is a nitrosamine used as an additive in gasoline and in lubricants, as an antioxidant and as a stabilizer in plastics. It is formed in cured foods and during high temperature cooking of meats and fish, and may be a disinfection byproduct.
N-Nitrosodimethylamine (NDMA)	62-75-9	It was formerly used in the production of rocket fuels, anti-oxidants and softeners for copolymers. It is formed in cured foods and during high temperature cooking. It may be a leachate from rubber gaskets and fittings and may form as a disinfection byproduct.

Substance Name	CASRN	Use
N-Nitroso-di-n-propylamine (NDPA)	621-64-7	It is formed in cured foods and during high temperature cooking of meats and fish and may be a disinfection byproduct. It is a contaminant in dinitrofluralin herbicides.
N-Nitrosodiphenylamine	86-30-6	It is used in the vulcanization of rubber and as an inhibitor of polymerization in the production of polystyrene. It may be a disinfection byproduct.
N-Nitrosopyrrolidine (NPYR)	930-55-2	It is used in rubber production. It is formed in cured foods and during high temperature cooking of meats and fish and may be a disinfection byproduct.
Nonylphenol	25154-52-3	It is used in the preparation of lubricating oil additives, resins, plasticizers and antioxidants for plastic and rubber. It is an environmental degradate from nonylphenol ethoxylate surfactants found in detergents and used in the treatment of textiles.
Norethindrone (19-Norethisterone)	68-22-4	It is a synthetic hormone used in oral contraceptives and for hormone replacement therapy.
n-Propylbenzene	103-65-1	It is a constituent of asphalt and naptha and used in the manufacture of methyl styrene. It is a solvent for printing and dying of textiles.
o-Toluidine	95-53-4	It is used in the production of dyes, rubber, pharmaceuticals and pesticides.
Oxirane, methyl	75-56-9	It is an industrial chemical used in the production of other substances. It is a registered pesticide.
Oxydemeton-methyl	301-12-2	It is an insecticide.
Oxyfluorfen	42874-03-3	It is an herbicide.
Perfluorooctane-sulfonic acid (PFOS)	1763-23-1	It is used in firefighting foams. It has various surfactant uses and it was used to provide soil, water and oil resistance for upholstered furniture and carpets. Many of these uses are being phased out by U.S. manufacturers.
Perfluorooctanoic acid (PFOA)	335-67-1	It is used in the manufacturing of coatings, which provide non-stick surfaces on cookware, and in the manufacture of waterproof, breathable membranes for clothing.
Permethrin	52645-53-1	It is an insecticide.
Profenofos	41198-08-7	It is an insecticide and an acaricide.
Quinoline	91-22-5	It is a component of coal tars and used in the production of other substances, and as a pharmaceutical (anti-malarial).
RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine)	121-82-4	It is an explosive.

Substance Name	CASRN	Use
sec-Butylbenzene	135-98-8	It is used as a solvent for coatings in organic synthesis, as a plasticizer and in surfactants.
Tebuconazole	107534-96-3	It is a fungicide.
Tebufenozide	112410-23-8	It is an insecticide.
Tellurium	13494-80-9	It is a naturally-occurring element and is commonly used as sodium tellurite in bacteriology and medicine.
Thiodicarb	59669-26-0	It is an insecticide.
Thiophanate-methyl	23564-05-8	It is a fungicide.
Toluene diisocyanate	26471-62-5	It is used in the manufacturing of plastics.
Tribufos	78-48-8	It is an insecticide and used as a cotton defoliant.
Triethylamine	121-44-8	It is used in the production of other substances, as a stabilizer in herbicides and pesticides, in consumer products, in photographic chemicals and in carpet cleaners.
Triphenyltin hydroxide (TPTH)	76-87-9	It is a pesticide.
Urethane	51-79-6	It is a paint and coating ingredient (polyurethanes).
Vanadium	7440-62-2	It is a naturally-occurring element. Vanadium pentoxide is a catalyst for the production of other substances catalyst. It is sometimes an ingredient in mineral supplements but is not classified as an essential nutrient
Vinclozolin	50471-44-8	It is a fungicide.
Ziram	137-30-4	It is a fungicide.

Microbes

Microbial Contaminant Name	Type	Diseases and Infections
Adenovirus	Virus	Respiratory illness and occasionally gastrointestinal illness.
Caliciviruses	Virus (includes Norovirus)	Mild self-limiting gastrointestinal illness.
Campylobacter jejuni	Bacteria	Mild self-limiting gastrointestinal illness.
Enterovirus	Viruses including polioviruses, coxsackieviruses and echoviruses	Mild respiratory illness.
Escherichia coli (0157)	Bacteria	Gastrointestinal illness and kidney failure.

Microbial Contaminant Name	Type	Diseases and Infections
Helicobacter pylori	Bacteria	Found in the environment capable of colonizing human gut, which can cause ulcers and cancer.
Hepatitis A virus	Virus	Liver disease and jaundice.
Legionella pneumophila	Bacteria	Found in the environment including hot water systems causing lung diseases when inhaled.
Mycobacterium avium	Bacteria	Lung infection in those with underlying lung disease, and disseminated infection in the severely immuno-compromised.
Naegleria fowleri	Protozoan	Parasite found in shallow, warm surface and ground water, causing primary amebic meningoencephalitis.
Salmonella enterica	Bacteria	Mild self-limiting gastrointestinal illness.
Shigella sonnei	Bacteria	Mild self-limiting gastrointestinal illness and bloody diarrhea.